



Re-sounding
Falkland

DAVID CHAPMAN
LOUISE K WILSON



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Please go to the companion website for further information on the *Re-sounding Falkland* project, which includes sound and video files and additional texts.

www.resoundingfalkland.com

Further information on the artists' work can be found here:

www.davidchapman.info

www.lkwilson.org

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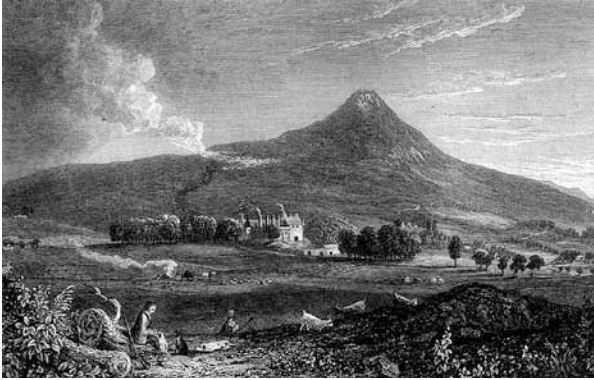
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Sounding out the hidden place

The earliest sources that refer to Falkland in the twelfth century, suggest that its name may mean ‘a hidden place or enclosure’.¹ In the first decade of the third millennium, we continue to search for hidden meaning here in our role as stewards of this landscape – looking after things that matter wherever we find them.

Louise K Wilson and David Chapman have joined the search over the last two years, with their auditory instruments, and made some fascinating discoveries. Their hunting ground was once a medieval deer park for the Stuart kings and then a place of retreat for some of the wealthiest aristocrats in the nineteenth century. Remnants of both legacies remain. This has led Historic Scotland and Scottish Natural Heritage to list the landscape as ‘outstanding’ as ‘a work of art’.

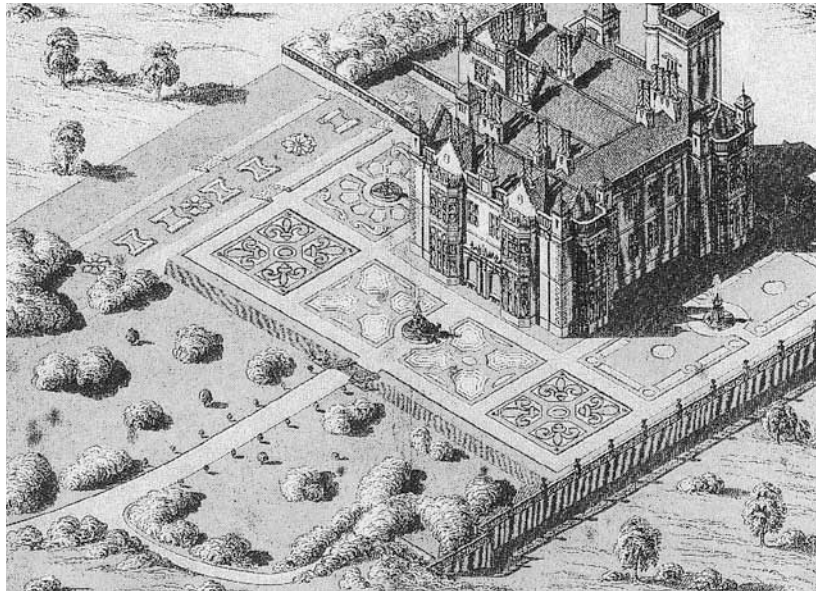
How does an artist work with a ‘work of art’ without devaluing it? The poet, Thomas A. Clark, who regularly walks here, reminds us that ‘Quiet is the home of natural sounds’. He also encourages us to be attentive as we explore and nurture the nature and culture of this place.

By listening, recording and recreating the sounds of this place, Louise and David have helped reveal meaning, re-animate a sleeping tapestry and raise

Falkland Palace,
engraving by William Miller after
William Brown (1830)

1. Simon Taylor with Gilbert Markus, *The Place-names of Fife Volume Two: Central Fife Between the Rivers Leven and Eden* (Donnington: Shaun Tyas 2008)

The House of Falkland, designed by William Burn and showing Alexander Roos' parterres. Illustration from *The Book of the Garden*, Charles McIntosh (1869)



Images opposite: (above) view of Falkland town and East Lomond Hill from Falkland Palace, (below) rear of Falkland Palace

new questions about the mysteries contained in these old stones – from the Royal tennis court to the ruined temple.

As part of an investigation into the landscape's design, they have sounded out the nineteenth century cascades that course through the park – which were allegedly tuned by the designers to create a sublime experience for their clients– and then composed a wonderful six-part audio piece for the twenty-first century.

While Louise and David have been listening, recording and playing with the stone, wood and water of Falkland, they have also happened upon the hidden source – the quality without a name as Christopher Alexander calls it – at the heart of this place. Their works reveals it for each of us to discover.

Thank you, David and Louise.

Ninian Stuart
Chairman, Falkland Estate Trust
Co-founder Falkland Centre for Stewardship





*Listening to Falkland:
aurality and artifice in a sonorous landscape*

DAVID CHAPMAN & LOUISE K WILSON

The first story we heard about the Falkland Estate, and one that immediately captured our imagination was that the burns that traverse the grounds of the House of Falkland had been ‘tuned’. The Estate had been extensively developed in the nineteenth century, with the building of the House of Falkland and the landscaping of the grounds that surround it. During this process, the burns that run down from the East Lomond Hill were formed into a series of cascades and some believe these had been deliberately manipulated to produce different pitched notes. This apparently deliberate and poetic intervention to the burns to create a sonic punctuation for those walking along their banks, was a beguiling notion. Although sadly there is no firm documentary evidence for this, there are nonetheless marked workings visible on the stonework of the cascades which a stonemason had latterly suggested would have been made to alter the flow, and thus the sound. Certainly these cascades were created for a pleasure walk that was designed to ‘delight the senses’ on a range of levels, as well as to make an interesting contrast to the natural, and much wilder cascades and falls in nearby Maspie Den, on the other side of the House.

Generally there is distinctive evidence that water has been harnessed and its courses shaped for both practical purpose and aesthetic effect. The Estate is criss-crossed by a large number of different watercourses and features such as waterfalls, ponds, pipes, fountains and wells. There are also associated structures like bridges, tunnels, carved stone beds and constructed banks. But

other flows – of seasons, ownership and occupancy, people, energy, birds and animals – feature prominently in stories swirling around the Estate, and lured us in for further listening.

For nearly two years, we were fortunate to have the opportunity to make sustained visits to Falkland, at varying times and seasons throughout the year, to research and develop ideas and record the Estate's sounds. We met people with fascinating insights into the history, ecology, industry and culture of the town, the Estate and the Palace. This allowed us privileged access: we were able to view the place from a variety of perspectives and areas of knowledge, and this informed the production of artworks, the *Falkland Audiowalk* in particular. In time our research took us into other sonically rich locations in the Kingdom of Fife and further afield. We also found ourselves browsing archives and libraries in Edinburgh and London in search of images and information to flesh out the half-remembered stories we had been told, or to hunt down Alexander Roos' original plans for the Temple of Decision (which continue to elude us to this day).

The artworks we created focussed on sound and the interaction of sound with visual media. The artifice of Falkland's designed spaces was a recurrent preoccupation. We also repeatedly considered ideas around the voice and how it is 'coloured' by the space in which it is uttered. We wanted to 're-voice' (and sound out) some of Falkland's hidden and ruined places.

Since embarking on the project in the autumn of 2007 we engaged in three stages of work: *Arcadia* (April 2008), an eight-channel audio piece produced for the tapestry gallery in Falkland Palace, *Falkland Audiowalk* (July 2009), a pre-recorded MP3 player-based walk around the grounds of House of Falkland and the Maspie Den gorge, and finally with *Re-sounding Falkland* (May 2010), a series of sited installations which included *Temple of Decision*, a video installation for the House of Falkland that investigated the ruin of the eponymous nineteenth century folly, *Bottle Dungeon*, a one minute audiowork alluding to the unseen subterranean space that exists beneath a trap door in the Palace office, and *Chase a yard worse than last*, a live work which involved the playing of 'Real Tennis' on the miked-up historic court in the grounds of Falkland Palace. This sonically rich game was further enhanced by processing the sounds of the clattering of the ball against the wooden 'penthouse' of the court, with reverb gathered using acoustic measurement techniques developed by Damian Murphy of the Audio Lab at the University of York (See Damian Murphy's essay in this catalogue).

The *Falkland Audiowalk* leads the participant on a journey through the varied terrain of the Estate and draws from a range of informed narratives from diverse positions including geologists, historians and estate workers. We



built on local expertise, speaking to a range of people who have an embodied and professional knowledge of the Estate. The interviews that we recorded encouraged us to undertake a wider survey of the sonic properties of the Estate, and the edited interview material was mixed in post-production with field recordings of the environment around Falkland. We also introduced more 'playful' elements such as songs or improvised 'micro-dramas' to explore specific historical themes and moments and to activate acoustically resonant architectural spaces. For example, a tunnel in the grounds by the Falkland House became the site of an imagined nineteenth-century 'below-stairs' tryst, while a memorial tower, built by Margaret Tyndall Bruce for her dead husband Onesiphorous, was marked by local performer Dot Clark singing a Robbie Burns' lament for a lost love. The core of our approach to this range of material was the notion of the 'filters' through which various people, including ourselves,

House of Falkland

view and listen to the Estate. The work also evolved through a dialogic process with our contributors. We undertook a series of walks with them and these were followed up, mostly, by in situ recorded conversations. Alongside the dialogues and the other audio mapping experiments, this research provided the basis for an exploratory, multi-layered composition.

Why did we choose to create an audiowalk? An audiowalk can be a way of alerting visitors (both new and those who know the area well) to the different aspects of the estate: its history and geology, its functioning as a working space and its topography as a designed and managed landscape. These perspectives reveal different layers of place and how it might be considered and understood. An audiowalk can also give access to audio experiences not normally available to visitors. These may be seasonally specific sounds, so the walk can act to 'time shift' audio experiences. It can also offer access to spaces which, for a



Audiowalk: David Chapman
recording geologist
Professor Stuart Haszeldine

variety of reasons, might not be usually open to the public. Additionally, the use of specific technology (hydrophones, ultrasonic detectors, convolution reverb) also allows or creates audio experiences beyond the normal range of the human sensorium. One of the critical dimensions of this type of practice is that it does not have a physical impact on the environment it is designed to investigate. It allows the area to be explored through electronic media, in this case MP3 players, without the installation of additional infrastructure. A crucial point to emphasise here is that the audiowalk was not intended to replace what is already there but, rather, to interact with the actual sonic environ-

ment and create disconcerting overlaps between the recorded elements and the ambient environmental sounds. This is why walkers were instructed to activate the audio tracks only at specific locations during the walk, rather than playing it as a continuous accompaniment to the whole walk, which takes just over an hour to complete.

In relation to the tuned burns, we had extensive conversations with David Jones, from St Andrews University, who has an in-depth knowledge of the architecture and design history of the Estate and who had first told us the story. To investigate more precisely the 'tuning', we asked Damian Murphy to conduct frequency analysis using our field recordings of the cascades. He noted that there seemed to be at least two dominant frequencies for each cascade. But while there was certainly a change in pitch, the relationship between frequencies in each example, and from cascade to cascade was not obvious. He

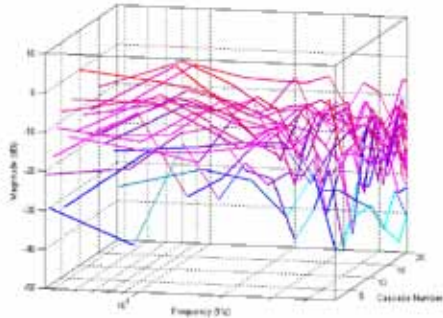


concluded that there is no systematic pattern as such and that maybe they were simply designed to sound 'nice' using approximation techniques. Even so, the dominant frequencies Damian had identified formed the basis of our 13 minute six-channel sound piece *Cascading*. This work explored the sonic complexity of the cascades by mixing stereo microphone and hydrophone recordings of the cascades with computer-generated tones and recordings of the human voice. The voices – one male, two female, from the St Andrews Renaissance Group – attempted to embody the cascades by voicing the tones corresponding to the dominant frequencies of each cascade. At times, for the male singer this effort to locate and sustain the tone was an audibly challenging one because he was being asked to sing at a lower range than he was comfortable with. At these moments, the listener is no longer simply aware of the virtuosity, but also of the living, breathing physicality of the singer's body. This heightened sense

Cascading, installed in
House of Falkland



Cascading: Choir Master and singer Andrew Macintosh



3D Waterfall graph of frequency readings from the cascades



Damian Murphy makes test recordings of the cascades

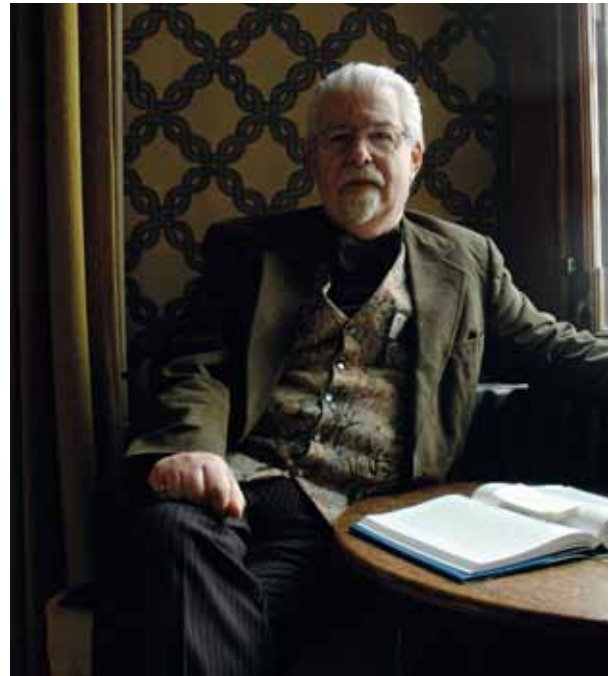
of the singer's corporeality, encourages the listener to attend more carefully to the sound (and the affect) of the cascades themselves, to hear these again as more powerful and complex than simply flows of 'white noise'. *Cascading* was installed in the Drawing Room in the House of Falkland. This room didn't overlook the cascades directly. As a consequence the listener would carry the memory of the sonorous qualities of the tumbling waters and combine it with the (sonic) artwork. It served as a reminder that we are embedded in an overtly designed human landscape.

We have been fortunate to have a series of essays in this catalogue that respond directly to some of the works that comprise *Re-sounding Falkland* and set them in a wider, less localised historical and aesthetic context. David Jones was our initial lead into the story of Falkland and provided us with much invaluable information about the Estate. We thought it appropriate that he should be invited to impart some of that knowledge here. Damian Murphy was a major collaborator on several of our works for this project, and he writes about his research into the concept of 'auralization' and how he applied his innovative techniques to spaces in and around Falkland. Christopher Woodward's book *In Ruins* proved an inspiration for us as we engaged with some of the ruined structures in Falkland and we were delighted that he agreed to discuss his thoughts on the sonic aspect of ruins and respond to our video installation *Temple of Decision*. Eric Laurier visited *Re-sounding Falkland* in May 2010 and, in conversation, provided many useful insights into our piece *Arcadia*. We are very pleased that he agreed to develop these ideas further for inclusion here.

We would also like to thank all the people who contributed to the project and generally helped us during our time in Falkland. Particular thanks go to Ninian Stuart and Helen Lawrenson from the Falkland Centre for Stewardship, for trusting us to transform our open-ended exploration of the Estate into something tangible and for the hard work they put in to make the *Re-sounding Falkland* project possible.



Audiowalk:
Gerry Loose, poet



Bottle Dungeon:
Tom Playfair, palace guide

Audiowalk:
Dr. John Fletcher, veterinarian,
deer farmer and historian



Sound Walking on a Scottish Estate

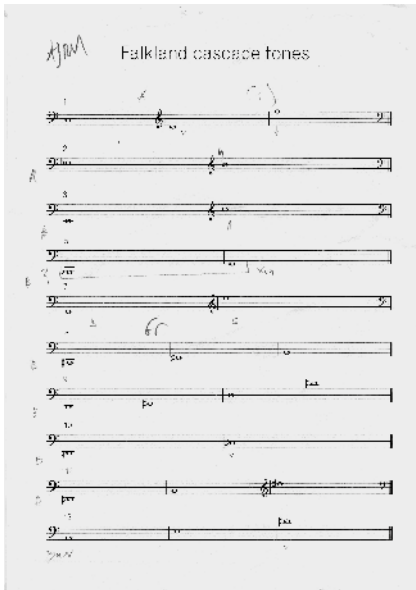
DAVID JONES

People may not understand what it is, this 'Hidden Place', but they are drawn to the Falkland Estate. An open gate arouses curiosity, there are glimpses of interesting buildings and trees and a pond, just inside. A free car park behind the lime trees says 'welcome'. Inside, you can hear the water that inhabits the place; the immediate noise comes from a cascade beneath a small ornamental bridge to the left, not visible until you walk up and peer over the parapet. The water here has come down from Falkland Hill and over time it has eroded stream beds, carved dens, risen and fallen and then, in the lower parks, been harnessed by the engineer-artists of landscape into watercourses, drains and man-made burns. 'Crackling Burn' is the name of the water that flows through the Home Park. It might have been called this because of the noise it makes, like the 'Clatterin' that appears in other Fife place names associated with water and stones. The rushing water has been directed towards the estate entrance, where it is suddenly domesticated, calmed into a still pond, then taken through the lodge and underneath it, travelling out towards the village at a slower, quieter, pace. The Lodge Pond forms part of a Picturesque arrangement of house, bridge and water – almost suggesting that it has once been a little mill, albeit a rather well-ornamented one – with decorative barge boards and a carved stone balustrade. It could be a design straight from John Claudius Loudon's *Encyclopaedia of Cottage, Farm and Villa Architecture* (1833). Although water features are part of the setting of most estate landscapes in Scotland, lodge ponds are rare. But the idea is effective, straight away suggesting comfortable settlement and bountiful supply. Perhaps this is why it feels like a good spot to meet, have a conversation, or sit down on the wooden seat that encircles the tree overlooking the pond.

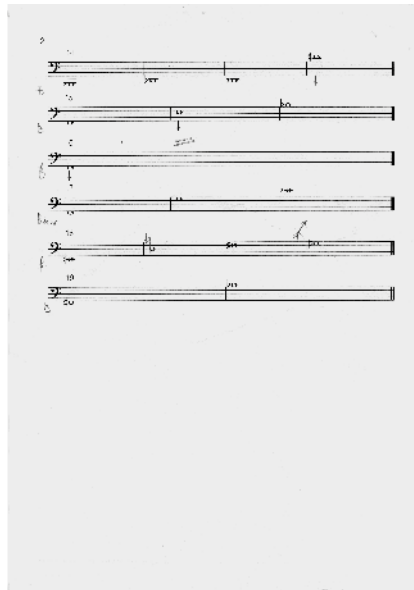
Some features of a landscape can be invisible, noiseless and even nameless, only to become seen, noisy and known about at certain times of the year. Such is a sledging place that attracts people when there is snow. There is one here, along from the Lodge Pond and its bridge. It is a perfect gentle slope, with the just-thrilling possibility of shooting into the pond if your steering is not straight.

Above the sledging place, almost hidden in the trees at the eastern end of Home Park, is an enigmatic building, just far enough away for you to wonder what it is. A brisk walk along a path at the edge of the wood and through a small iron gate brings you to an apparently ruined chapel. It has been

constructed using big smooth-faced stones and interesting irregular stonework called *sneaked ashlar*. Although built in a Late Scots Gothic style, with massive masonry and a broken skyline that evokes an atmosphere of antiquity, this is not an ancient building, but one that was started at the beginning of the twentieth century. The architect was Reginald Fairlie (1883–1952), a good friend of the



Cascading: vocal score
by Andrew Macintosh



Marquess of Bute and a fellow Roman Catholic. His family owned the neighbouring estate and castle of Myres, outside Auchtermuchty. Under the patronage of Ninian, the fourth Marquess, Fairlie designed Catholic parish churches at St Andrews and Troon, Ayrshire, both in similar Scots style, yet the Falkland building was always intended to be a smaller chapel. It was started in 1912. Completion was quickly interrupted by war, when architect and patron, both aged 31, were called up; Fairlie to serve in the Royal Engineers and Crichton Stuart to command the 6th Welch Regiment. Ninian was killed at the Battle of Loos on 3rd October 1915.

The incomplete chapel had been conceived as a memorial to Lord Ninian's infant son who had died in 1910, but now became a mausoleum for the Crichton



The cascades, with House of Falkland in background

Stuart family. Deliberately left roofless and ragged, and visible from both the house and hill above, the chapel has the appearance of an eyecatcher. It belongs in the tradition of the Picturesque ruin. The introduction of ruined buildings into 'woody' landscapes had been recommended by the designer and artist William Gilpin in his *Remarks on Forest Scenery*, (1791). Gilpin's nephew, William Sawrey Gilpin, proceeded to become a noted garden designer who created the informal landscape at Balcaskie, Fife (1826–7), where, interestingly, there is a ruined and roofless chapel, left as an eyecatcher in the wooded garden. W. S. Gilpin is known to have advised on the Picturesque design of the policies at Falkland in 1840, where the sublime effects of landscaping enhancement along the Maspie Den certainly accord with his style and theories. Whatever the extent of W. S. Gilpin's work or advice here, it seems possible that Fairlie may have known about it and that the decision to leave the Memorial Chapel unfinished and crowded in by trees was a deliberate continuation of a Picturesque tradition on the Falkland Estate.

At around twenty-five acres, the Home Park at Falkland is a small part of the complete designed landscape, but it is an excellent place in which to make a questing journey. You can go at a round pace or let yourself linger; whichever you do you must listen in to the stories that emerge from the sites (or even make

them up). Whether you allow yourself to be choreographed or just follow your nose and ears, your odyssey will include the Lodge Pond, the Memorial Chapel and the Cascades that each play their different notes. You might find what you think is the sledging place, or the foundations of Old Nuthill House. You will certainly find the many paths that circumnavigate and criss-cross the park.

Remember that this is a human place, and that you are part of its invention.

Scotland's dramatic landscape has attracted the walker and climber over several generations. Those drawn to tracts of wilderness, dangerous crags



and high mountain tops have thrilled to the hostile beauty of the country or found solitude in its lonely places. There is a considerable literature on the subject, from James Boswell to Robert Macfarlane. More recently, it has attracted that twentieth and twenty-first century character, the walking artist, who has been similarly inspired by challenging aspects of the land and the possibility of making long distance expeditions that can provide the basis for works of art, or be the works themselves. Most notable amongst these creative walkers are

Audiowalk: Louise K Wilson and David Jones at the Memorial Chapel

Hamish Fulton and Richard Long; neither is a Scot, (despite the resoundingly Caledonian sound of the first), but their names have become strongly associated with the country. Fulton's most recent large work, *Mountain Time Human Time. A 21 Day Walk from Huntly Square to Glenmore Lodge*, involved a traverse of the Cairngorm Plateau – the most extensive area of subarctic landscape in Britain. It was the subject of a major art book published in 2010. Similarly, Richard Long, whose work takes the form of sculpture inspired by and taken from the landscape, favours Scotland as a location, having made numerous cross country walks here since he began making art in the late 1960s.

The work of David Chapman and Louise K Wilson is concerned with a quite different part of the Scottish landscape; not the wild, remote environment traversed by Fulton and Long, but the human landscape to the south. They are

particularly concerned with the created/designed landscape and in the case of *Re-sounding Falkland*, their subject is an ancient lowland estate that was once a royal hunting forest. This is a well-inhabited place with a rich history. There are hills – the two peaks of the Lomonds, known as ‘The Paps of Fife’ – but they are not the Cairngorms, their presence is relative to the smaller scale wooded slopes and lowland strath that surrounds them. Unlike the Cairngorms, their upland plateau and tops have been mapped and divided into a ‘commonty’ (common land with multiple owners) and their waters have been cleverly channelled to create features that lie below in the designed policies of the House of Falkland. Lowland estates are microcosms of landscape, especially in Scotland, because the countryside has such a diverse geography and geology. Most Scottish estates have water features; lochs or a waterfall, many have impressive hills that provide a backdrop, and all have architectural ‘improvements’. The history of development and use of these wonderful miniature inhabited landscapes has certainly been varied; there have been eras of great creativity, such as the eighteenth and nineteenth centuries, and then times in which all has fallen into desuetude, times of depression, war and its aftermath, such as the mid twentieth century. The late twentieth and early twentieth centuries are witnessing a renaissance in which the creation of new art in these already detailed landscapes is occurring once more. This is happening in Scotland at places such as Mount Stuart, Bute and Bonnington, West Lothian, as well as Falkland. There are parallels too, in other northern countries, such as Sweden. The Wånas Estate, Skåne, for example, has begun, since the early 1990s, to concentrate on art as well as agriculture. Sound art in this context, and, in particular, a hybrid of sound art and walking, the ‘Sound Walk’ or ‘Audio Walk’, is being pioneered on these estates and involves the active participation of a walking audience, or individual, just as did the landscape interventions of centuries past. All the features in the *Falkland Audiowalk* have been created or adapted by man in the eighteenth, nineteenth or twentieth centuries, and continue to be used in sometimes obvious and sometimes hidden ways. Not all are explained and some are positively enigmatic, but the sound walk is a new way of approaching the designed landscape. Like the walking pieces of Hamish Fulton in the wild environment of the Cairngorms, the *Falkland Audiowalk* ‘leaves no trace’ but it does help reveal and deepen understanding of the special qualities of the place.

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www-ah.st-andrews.ac.uk/staff/davidj.html



Arcadia: hearing ducks in the hallway

ERIC LAURIER

Arcadia wants something of us, who listen to it and look at it. Stanley Cavell, a philosopher of film, has said that artworks think and that they think philosophically. He says this not to convince us that we need to find the artists behind artworks to examine their intentions. He is proposing that we ask 'why the work is as it is, why just this is here in just that way.'¹ There is in the artwork sufficient materials for us to think about it without the need for an accompanying interpretation from either the artists or a critic because the artwork is the thinking.

It is early summer. In an otherwise silent hallway sounds float to us, in through the windows, connecting us with the surrounding landscape. Chuckling ducks, horses passing by on cobbles and a deep mooing that might be a cow or a stag. And yet, some of these sounds surely can't be. A snapping twig, a soft lilt of a folk-singer mentioning 'venison' and... is that a hunting horn? These sounds are not floating in from the window, they are floating in from a seventeenth century tapestry on the opposing wall of the hallway. A Flemish tapestry of hunting scenes left to be forgotten in the hallway of the historic site that is Falkland Palace. We turn away from the windows and the perspective that they might offer over the landscape and turn toward the thickly wooded landscape of the tapestry. We realise that David Chapman and Louise K Wilson have created a soundtrack that re-animates the sleeping tapestry.

Arcadia is mindful of the anthropologist Tim Ingold's warning of the dangers of the commonly used term soundscape when it becomes routinely used to describe an element of the landscape.² If we think in terms of a soundscape we break apart a sensual world which we experience as a whole in order to

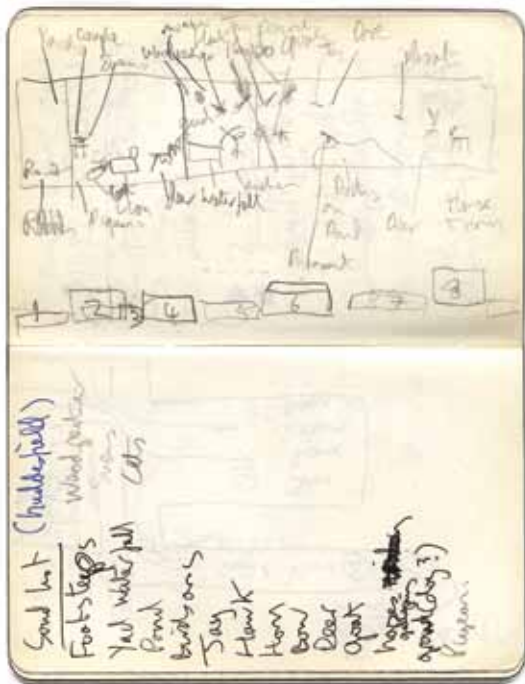
say that there is one 'scape' made of sound which could be contrasted with the light-scape or odour-scape. Such an idea was first conceived in the face of the dominance of vision in historical studies, aesthetics and artistic renderings of landscape. An example will help here: the gurgle of the small stream is heard under the bridge that we are walking over, as a light rain falls on our face, and we are tired too after a long day walking in Fife. Hearing the gurgle is experiencing it in the midst of all else that constitutes our place in the world that day. To attend only to the audible misses what the gurgle was to us on that day.

In criticising soundscapes, Ingold goes on to worry over the fact that we have come to confuse the power of hearing with the technologies that allow us to record audio. We come to think that ears are 'instruments of playback'³ and forget that we more or less actively use them to discern, overhear, notice, monitor what is happening around us. Where he would accept the idea of a soundscape is in the sphere of creative practices that involve assembling audio recordings into a larger entity that audiences can listen to. There the soundscape's use is licit because that is indeed all that this object has been built out of. Yet as we have noted already it is not so much a soundscape as a soundtrack for the tapestry on the wall.

The soundtrack draws upon Michel Chion's idea of 'synchresis', which is about the creation of relationships between visual and audio recordings in film.⁴ In the action movie, and in fact almost everywhere, synchresis is the thwack of the punch. A recording of a bag of wood chips, sand or even a side of beef struck by a boxer or baseball bat is added to the actors' miming of the fight. In the film, *The English Patient* (A. Minghella, 1996), the desert landscape was absolutely silent and the editor, Walter Murch, used the muted sound of insects and sand run

across paper because otherwise 'it would sound artificial.'⁵ Absolute silence in a cinema space inadvertently creates a John Cage effect where the sound from the theatre is heard instead of the film.

There was a telling intersection of the idea of National Trust Property and the ambitions of the piece when the management of Falkland Palace asked at one point for Arcadia to be turned down. It was too loud. It was distracting the visitors to the palace. The palace expects a hush. How quiet the National Trust members are in compliance, just as they are elsewhere in stately homes. Yet it is not just that the building has somehow died without the voices, animals, clatter of pots, constant to-ing and fro-ing of family, servants and accountants. Without



Arcadia:
David Chapman's
notebook

carriages on cobbles carrying glass bottles. Without a bent iron being hammered flat again. It is that when we visit these properties we find ourselves listening for those lost sounds. As if in a séance by daylight, or, becoming historians needing studious silence to exercise our imaginations of what this place would have been like, fifty, one hundred or four hundred years ago. Arcadia surprised us by providing bustle, rustle and voices to hear in the silence of grand architectural preservation.

Even though the owner wanted the visitors to attend to what they should attend, over the last two hundred years the tapestry has been ever so slowly and steadily disappearing from the public's notice. Our communal orientation to representations of the world has shifted toward other forms than woven ones. In the years when the tapestry was first unfurled it must have been deafening. Of course it was not strictly deafening, it was overwhelming. Its viewers would find their dull rainy familiar landscape eclipsed; it was the IMAX experience of its day (as a friend suggested to me afterward). An exotic hunting scene presented in an extreme widescreen format. Where IMAX uses curved screens to attempt to exceed our peripheral vision and immerse us more fully in the film, the tapestry exceeds it entirely. Why is it so wide? Because we should walk along it to view it, rather than sit in a fixed position as amongst others in a movie theatre.

IMAX presents one thing after another. A gravity-defying swoop downward toward a building. Cuts between the massive and the micro. If our gaze wanders across the screen it is only perhaps to take in a second or perhaps a third thing happening. The tapestry has been woven that we might spend an hour and a half traversing its scenes, by foot and by eye. It is as if a documentary on hunting were laid out scene by scene on the wall, which, in fact, documentaries often are, during their editing.

A lamb bleating, water flowing – and the ducks again. So crisply recorded that we immediately grasp their texture as of the now. Synchresis is at work and the tapestry becomes an audio-visual object, becomes Arcadia. The passageway is alive again. Film transitions that shift in historical period are frequently prefigured by a contrast in the background noise. From horses hooves to the rumble of traffic in the city. For Arcadia it is our walking through the room of the palace that takes us from diligent visitor hush to a long narrow hallway filled with working and living landscape. Whereas the film is a profoundly sequential object, the tapestry is a spatial one, waiting for us to find our way through it. The soundtrack is not such a straight line then after all, it is a sound tapestry with no particular beginning nor end nor path to be followed through it. In harmony with the wall-hanging, the practice the sound tapestry invites is one of wandering around and through it. Which is exactly what most of the audience are doing. Walking three or four steps onward and then pausing to take in the tapestries.

Next pages: Details from the
17th century Flemish tapestry >





What David Chapman and Louise K Wilson have brought together then is a synchresis of tapestries. One woven of digital recordings, which play from a series of speakers along the hallway, and the other, the ancient and pre-existing weave of the cloth. As we walk along the hallway pausing to inspect the ancient tapestry a little more closely, there are moments when the soundtrack converges with the picture. At others we hear a lamb bleating and scan around the tapestry ahead of us trying to find the lamb depicted there. By the very fact that so much of the hunting scenes on ancient tapestry are wooded, what we cannot hear could simply be obscured by trees. Birdsong in the woods is enough for the non-ornithologist to accept the presence of birds. Something else throws us off though. The scenes are of another country and another time. What we can hear are sounds of the here and now.

It is the strange lamination of Fife and Flanders, of lost art and contemporary art, of audible lamb and visible huntsman that sets us thinking of course. Were it perfectly glued together, if that were possible, providing sounds from the original tapestry's period, it would take us back into a realm of multi-media museum exhibits that attempt to shift history into the register of experience. Here, instead, we ponder as we pause in the hallway. What are tapestries? Where did they go? Might they ever come back again? The generosity of Arcadia is that it shines a light on (and literally did so with torches on its opening night) the tapestry rather than itself. Though the gesture is still more subtle since the tapestry and Arcadia are part of the same artwork for its duration. I cannot help but feel that it is a shame that the tapestry now lies silent with visitors transiting through the hallway rather than stopping to listen and look for the ducks for a while.

Images opposite:
Arcadia: installation shots
(photos Lewis James Houghton)

1. Stanley Cavell, 'What Becomes of Thinking on Film?' Stanley Cavell in conversation with Andrew Klevan. In R. Read & J. Goodenough (Eds.), *Film as Philosophy Essays in Cinema After Wittgenstein and Cavell* (pp. 167–209). (Basingstoke: Palgrave Macmillan, 2005), p. 185.
2. Tim Ingold, 'Against Soundscape'. In A. Carlyle (Ed.), *Autumn Leaves* (pp. 10–13). (Paris: Double Entendre 2007).
3. Tim Ingold, p.10.
4. Michel Chion, *Audio-vision: Sound on Screen*. (London: Columbia University Press, 1994).
5. Walter Murch, 'Sound Doctrine: An Interview with Walter Murch'. (pp 2–10) *Film Quarterly*, (Spring 2000), p.10.

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Listening to Piranesi

CHRISTOPHER WOODWARD

I began to think about the sound of ruins in Split, in Croatia – the Roman city of Spalatro – this summer, when I put my laptop on a flight of stone steps fifteen centuries old to check my emails, and read about Louise and David's project at The Temple of Decision. It was the wifi zone of an outdoors café, and as a band sang Bob Dylan covers to tourists I discovered the story of that Victorian simulacrum of a Roman temple on a wet hillside in Scotland. In David's words: 'A late sketch of Rome's glory / Now hawk-roost / hare-house / sheep-shelter'.

Split was a palace and mausoleum built by the Emperor Diocletian on his retirement in 305 AD. At the fall of the Empire it became a town, the people protected from centuries of wars and lawlessness by the Emperor's high stone walls. I have been visiting ruins for fifteen years but have never seen in western Europe such a juxtaposition of modern life and ancient stone as in Split: inside that ancient rectangle modern life lives against intact Roman walls, washing lines strung between the capitals of Corinthian columns, and children slamming doors to hurtle over the paving stones to school.

At its centre rises the mausoleum of Diocletian, a dome placed above an octagon. I don't have a guidebook, but recollect that he is said to have persecuted the Christians; a guide is telling visitors, in English, of how 'he cut off [sic] Lucy's eyes'. But you don't need to know the detail: you see, bluntly, how a Roman tomb was converted into a Christian cathedral, celebrating the triumph and revenge of one civilisation over another. The bare brick dome is of very thin bricks, imprinted with the trace of the original ornaments, and in between the great Roman columns a succession of Bishops are buried in sculptured medieval niches.

An adjacent space contains the choir stalls and in the archway between the two a Baroque altar has been inserted. It's a wooden, wonky, free-standing structure which reminds me of a salvaged ship displayed inside a Museum gallery. The wings of gilded angels clip the grey, chipped stone. I am inside for 45 minutes, until the cathedral closes. No one else stays for more than 6 or 7 minutes. Rubber sandals go slap, slap, thwack on the disjointed marble steps, people read guidebooks in low foreign voices. I sit on the floor, then lean on my elbow, so that I am in tactile contact with as much of the surface area of the stone floor as possible. And what happens over this period of time is that the tourists who walk become invisible, in the way that a figure who crosses in front of a camera photographing on a long exposure disappears, becoming a smudge or a shadow on a negative.

Perhaps this semi-trance has a physical cause; I'd got on to a bus in Albania at 5.30am, and over twelve hours have travelled through Montenegro, Bosnia and up the coast of Croatia. And I have not spoken to an English person for three weeks. But, also, the discovery of Louise and David's work has given a new sensitivity to ruins. The angels on the altar are visibly wooden, but hold the reliquary with such lightness and care that they seem about to float. The base of the altar is composed of precious, coloured hard stones, and on the marble steps below a nun has placed orange and green watering cans and buckets, and tall flowers in plastic wrapping. The only sound I hear is the nun preparing for the service: she un-crinkles the plastic, snips the stalks of the lilies, and switches on the Hoover. It's Henry the Hoover, and it's a sound which is located at home.

There must have been a moment of violence, at which red-eyed fanatic Christians toppled the white-eyed, tall pagan statues. But that moment has blurred into a vaguer continuity, a succession of lives – the Emperor, the nun, and I – blurring into one another inside this ancient structure. It is exhilarating, and exhausting.

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'It's been said that stonework absorbs and holds energy, that a powerful emotional event may be captured and played back like a tape recording. The building listens and the ruin plays back.'¹

At the end of *La Recherche du Temps Perdu* the narrator comes home from the sanatorium. On the train journey he is depressed, convincing himself that if he can be so un-moved by the light in the trees he cannot have any artistic talent. The next day is the reception at the mansion of the Princess de Guèrmantes. In the courtyard he stumbles on an un-even flagstone, and is overcome by happiness. He repeats the movement. Why has it made him so

happy? A memory rises to the surface of the un-even floor of the basilica of St Mark's in Venice.

Why don't his photographs of St Mark's produce such an emotion?

Photographs can only delineate the surface of a place, he considers. To Proust visual memory is 'voluntary' – that is, deliberate. Intellectual concentration can only tell us what objects 'looks like, as opposed to what they are'. It is smell and taste which reveal the past to us, by bringing to the surface memories which are true precisely because they are 'involuntary'... And it is in the continuity of these memories, Proust continued, that we discover eternity.

The touch of the flagstones. Smell. Taste. He might have said sound. Our approach to ruins has been dominated by the visual, by records of what they *look* like. What do ruins *sound* like, I began to ask myself? My first reaction to the ideas in *The Temple of Decision* is a panicking sense of loss. I have thousands of photographs but the soundtrack to these travels is blank, wiped. If I concentrate I know that the Colosseum is noisy with traffic, and that guides' voices pierce the Forum with strident facts and dates. But that is what Proust called 'voluntary' memory, and it reveals nothing. But, as when you un-pop your eardrum after a flight, sounds return. A hobbled donkey braying in the ruins of a castle in Turkey. At Ephesus, as it got dark, the bells of goats tinkling on the invisible green hillside. In Ostia an old Italian man stood on the stage of the amphitheatre, recited a poem to his wife, and bowed. Downtown Detroit was so abandoned and quiet that all I could hear was the rusty whine of a bicycle cycled round and round the ruins of the railway station by a homeless black man, the tyres flattened by the weight of his packed up and piled possessions. And then the birdsong. The surprise of Detroit is that it's alive with bird song. Not pigeons – because pigeons follow people, and the people have left Detroit – but sparrows, thrushes, and finches.

What links this quick list of remembered sounds is the intensity of subjective personal experience. You can only 'hear' a ruin when you have become emotionally engaged with the structure and its place.

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The modern experience of heritage is becoming increasingly de-sensitised. What does the National Gallery smell like? What does the Tower of London feel like? What's the sound of Stonehenge? The audio-guide ('included in the admission price') has replaced our individual sensation. The modern visitor knows more, but feels less.

Once upon a time, 'heritage' was a sensual experience. The Colosseum stank of cabbages, according to James Boswell: the land around the arena had become market gardens. To travellers that smell – and the smell of dung from the cattle

who grazed in what had been the Forum – opened up a cascade of reflection on the transience of power; sic transit Gloria mundi. Inside the Colosseum a hermit lived in a chapel, grew hay, and in the evening clanged a bell for prayers. The terrace was a jungle of flowers, creepers, and trees, the tiers of seats slippery underfoot. Its solitude echoed: Byron listened to the call of a jackal, and the French poet Lamartine tried to capture in words the sound of the wind in the arches. It was these unintentional juxtapositions, these collisions and changes, which inspired artists to a creative or reflective response.

Edward Gibbon tells us why he was inspired to write *The Decline and Fall of the Roman Empire*: 'It was in Rome of 15th October 1764 as the bare-footed friars sang vespers in the Temple of Jupiter that the idea of writing the decline and fall of the city first started on my mind'. Gibbon was inspired to study and write by a sound, not a sight, or a text: the chant of monks echoing inside a structure which had once been a Temple dedicated to the power of pagan Rome.

In the Forum today the trenches dug by archaeologists and the fences put up by administrators divide us from the past. That's the past, you think, as we listen with respect to the facts, and sssh children who say they want a burger for lunch; the present begins when you switch off the audio-guide, and walk through the turnstile to find something to eat and drink. In earlier centuries of ruin visiting the past was inseparable from the present and the future.

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The Temple at Falkland has fallen down. It is a puzzle to visitors and to local people and must be a problem to the owner. People always want to do things to ruins: to restore, demolish, or protect and stabilise. Or they want an explanation: why was it built?

Very little is known about the structure. Was it just an eye-catcher, a place to walk to, and enjoy the view? Or was it – like so many follies – built for a reason: to celebrate a journey, a victory, or to commemorate a friendship? We don't know. This piece gives a point to its pointlessness, and a value to the phase between functioning intactness and its final disappearance.

In the Chapterhouse at York Minster David's work with whispers articulated the volume of an intact space;² at Orford Ness in Suffolk Louise's *A Record of Fear* was created 'to make audible what is absent or intangible'.³ Here their collaboration with Dr Damian Murphy re-creates the spatial experience of the structure: we hear what voices would have sounded like inside the intact Temple and this in turn evokes the strength and depth of the vanished walls. Sound can penetrate below the surface; sight cannot.

To a heritage professional the Temple of Decision opens up all sorts of possibilities of interpretation: in the last fifteen years this has become a

(above) side-view of the Temple of Decision,
(below left) Temple gatepost
(below right) Marked column stones from the Temple





Louise K Wilson in
the Temple ruins

mini-industry, with gadget after clever gadget promising a larger and more immediate injection of facts into the visitor. This project reclaims the imaginative possibilities of the technology.

But the work has a significance beyond the profession. As suggested above, we only 'hear' ruins at a point of profound and individual emotional engagement. How do we reach that point, which Victorian writers on art called an 'epiphany'? By the effort of a journey, whether a pilgrimage to Rome or by waiting for the little boat to chug across the river to Orford Ness. It takes time, immersion, and concentration. It helps if you are alone. This project reveals that, conversely, sound can bring that process forward, and create an intense and personal relationship with a ruin.

Travellers once spoke to ruins. At Sparta Chateaubriand yelled the name of Leonidas, and waited for his words to bounce back. After the capture of Constantinople Sultan Mehmet travelled to the site of Troy and announced 'I have avenged thee, Asia'. This tradition was in itself an echo of an earlier tradition in which ruins had voices. In Zephaniah's prophetic vision of the fall of Nineveh the desolate empty windows of the city spoke a warning to travellers, and in ancient Greek poetry the voices of heroes spoke of fame and transience from tombs which were now grazed by goats. In Edgar Allen Poe's

first published poem *The Colosseum* (1833) a traveller stares at the dead 'grey stones' – but the stones begin to stir, articulating a spiritual energy which, for Poe, represented immortality: 'Prophetic sounds and loud arise forever / From us and from all ruin unto the wise'. Poe had never visited Rome, and I wonder if the picture swirling in his mind was the bird's eye view of the oval arena drawn and engraved by Piranesi.

That prompts a final thought. Years ago I worked at Sir John Soane's Museum and when the visitors had gone, and the night guards had not yet closed the shutters to the windows, I would take down the bound volumes of Piranesi's engravings. As you turned the heavy pages the blocks of stone came to life, whether being winched into place by engineers, or tumbling down centuries later. You can *listen* to Piranesi: old vaults groan, and drip; stones creak, and rasp, and whistle.

Arriving as a young man in the city of Rome he declared that his ambition was to depict 'the speaking ruins which filled my soul,' a quality, he continued, which the measured line drawings of his predecessors had not conveyed. He would spend the remainder of his life in the city, in a relationship so passionate that at times he fell – or, perhaps, ascended – into a delirious frenzy of working through days and nights.

There are thousands of prints and drawings of Rome, but only Piranesi's have this aural presence: it is a consequence of the intensity of his relationship. He, too, understood that have only engaged with a ruin when it comes to life with sounds, whether the imagined voices of its builder, the echoes of earlier travellers, or the wind, the animals, and the weather which inhabit the dilapidation today. *The Temple of Decision* is a huge stride towards rediscovering this extra dimension of ruin.

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1. Extract from *Temple Of Decision* (2010).
 2. David Chapman's audio installation *Octo: Sotto Voce* was presented in the Chapter House, York Minster in October 2009 as part of *I Hear Too: Live*.
 3. Louise K Wilson's series of sound and video pieces collectively entitled *A Record Of Fear* took place on Orford Ness (and Ipswich) in 2005.

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Auralization: Creating Sound Experiences

DAMIAN MURPHY

Sound is often considered the poor relation to our visual sense, yet it plays a significant role in conveying information for rapid assimilation by a listener – we can hear, locate and understand an ambulance siren and understand its meaning long before we see it.

Sound working in combination with images is a key component for the successful perception of *virtual reality* environments – with perhaps the most obvious example being the cinema where good, integrated use of audio-visual material allows us to suspend disbelief and immerse ourselves in the cinematic experience, the story, the characters.

AURALIZATION:

Auralization can therefore be considered the aural equivalent of *visualization*, and visualization as an art form we have come to accept and appreciate in the modern use of computer graphics in film, television and video games. Computer visualizations are easy to comprehend and appreciate, and they can impart such a sense of quality that we accept them as some form of reality, be they based on actual real-world scenes or an imaginary subject or landscape. We are visual beings and computer rendered visualizations, whether static or dynamic, allow us to pause and appreciate, for instance, the beauty of detail, colour, or depth of field of the rendered scene. Recreating the auditory equivalent, however, is in many ways a much more complex process - it is a constantly

changing, ephemeral experience with few fixed points of reference (unlike a visual landscape), and our perception and understanding of it can depend on many different aspects - our own personal sound experiences; the choices made by the designers in presenting the audio material to the listener; whether this is for personal listening (headphones) or shared experience (as in the cinema) - but the results can leave an impression or memory with us after images have long since faded. Our ears and brain are finely tuned interpreters of many competing streams of complex auditory information, and are sensitive to a broad range of acoustic sensations, both in terms of frequency (from lowest bass to highest treble) and dynamic range (from silence to the threshold of pain).

Auralization is defined as:

...the process of rendering audible by physical or mathematical modelling, the sound field of a source in space, in such a way as to simulate the binaural listening experience at a given position in the modelled space.¹

This is in itself a rich and complex definition. The starting point is a *model* of a particular environment, usually enclosed, so a room rather than an outdoor space. The classic example, from where much of this work has originated, being a concert hall. Into this room, we place a sound *source* (perhaps an opera singer if we take the concert hall example further) at a particular location (on the stage) and a *listener* (in the best seat in the house). We then wish to recreate for this listener the *binaural listening experience* of the opera singer on the stage of the modelled concert hall, as heard from the best seat in the house. More rigorously we wish to recreate the acoustic pressure sensations at each of the listener's eardrums (hence *binaurally*). This requires acoustic knowledge about the sound source (what sound does our singer make? In what direction does the sound travel, and how do these properties vary over time or with audio frequency?); how the soundwaves so created propagate through the concert hall (how far do they travel before arriving at the listener's ears? What happens when sound interacts with a wall, or an object in the room? What effect does air have on sounds travelling through it?); knowledge about the listener's head and ears (the size and shape of the outer ears - the pinnae; does the listener move their head or remain static?). Will this modelled sound then be presented to the actual listener over headphones or over two (stereo) or more (surround-sound) loudspeakers, and if loudspeakers are to be used, will the listener be positioned in the middle of them - the so called *sweet-spot*? Auralization separates the experience of listening to a sound within a room into the constituent acoustic elements, from sound source to listener's ear. As a result this process can

be better understood, and with understanding comes the ability to control, reshape and re-imagine the listener experience.

MODELLING AN ACOUSTIC SPACE:

At the centre of this process is the model of the enclosed acoustic space. The model can actually be a reduced scale construction of the actual building, complete with miniature loudspeakers (for sound sources) and microphones (for the listener's ears), with the audio signals scaled up in frequency accordingly to compensate for the change in physical dimensions. Such techniques are now rarely used due to the high level of skill needed in the construction, not to mention the time required to build them, the high costs involved and the limitations of the miniature audio systems used. Instead, it is now commonplace to build a computer model using well established 3D computer aided design techniques. In fact in this way it is possible to take a computer based *visualization* and generate from it an *auralization*. Despite the flexibility that this implies (it is much easier to edit, change and experiment with the design of a computer based concert hall than with a comparable scale model, or even the real thing), the accuracy of the result is still only as good as the mathematical techniques that are used to describe how sound behaves within this virtual 3D model. As yet there is no perfect solution for this problem. However we can get very close and certainly to a point that the result is perceptually 'good enough'.

Auralization is most commonly used in Architectural Acoustics. As part of the design of any building, the characteristics of the building's acoustics – its very sound – need to be specified, designed and tested. Nowhere is this more critical than in the design or refit of music performance spaces – concert halls. Here the resulting acoustic must suit the music to be performed (what might support an orchestra might completely swamp a soloist or string quartet), from the perspective of both performers and audience members, while the acoustic design features considered must suit the overall aesthetic of the space and the experience of being present within it watching a musical performance.

However, apart from in the design of concert halls, auralization has a role to play in more everyday spaces – school classrooms, railway stations, hotel lobbies, factory floors, in fact anywhere that clarity of sound, or minimum noise is important. The ability to be able to listen to what these spaces might sound like before they are built is critical if the sound heard within them is to have a positive impact on their occupants as they go about their day-to-day activities.

SOUNDS PAST...

The use of high quality auralization and visualization has already been mentioned as key to the development of immersive, realistic virtual reality experiences, with certain films and computer games being more everyday

examples of this technology. This leads to one of the most recent and interesting areas where auralization has been successfully used, and where it has been put to use as part of this project – the understanding and preservation of heritage. Heritage buildings, sites and landscapes are all subject to change over time and so their audio/acoustic preservation is just as important for an understanding of the past by future generations as any of their other material or visual aspect or property. With appropriate guidance from experts in archeology, architecture or history, we can piece together the collapsed stones of monasteries and listen again to the echoing plainchant of monks in prayer. We can reconstruct Stonehenge, ignoring modern elements such as noisy roads and aircraft, and place the listener in the very centre, to experience the sound of a ritual as the sun rises on the solstice. We can experiment with building materials and construction techniques to explore how actors would be heard across a Greek or Roman amphitheatre. All of these are examples of projects where auralization has played an important role, and so helped to place sound and acoustics within the context of modern historical or archaeological research and establish these techniques as a rich and valid means of investigation. Developing these ideas further, auralization can be used as a means to facilitate modern interventions with heritage sites, and so allow sound designers and artists to better use the broadband information processing capacity of our hearing system, to present new and novel soundscapes to an audience, be this as information, interpretation, guide or artwork.

AURALIZING ASPECTS OF FALKLAND

So it has been at the Falkland Estate, under the guidance of artists David Chapman and Louise K Wilson, that auralization has been used in three particular interventions, two to provide access to sites that would otherwise not be possible, and the other to reconstruct a site that has laid derelict for many years, and so once again allow us to listen to voices echoing around its walls.

ARCHITECTURE, ACOUSTIC AND LANDSCAPE

The Tyndall Bruce Monument is a tall and imposing stone, circular tower, located up a steep and wooded path on the Falkland estate, and its location offers magnificent views over the surrounding countryside of Fife. But this walk is not suitable or possible for all, and so the experience of a particular acoustic environment (for the monument is usually open to passers-by) in a spectacular landscape can be missed. To this end we took acoustic measurement equipment on the back of a 4x4 pickup truck up to the monument and got to work with microphones and loudspeakers.

Acoustic measurement for auralization is the real-world equivalent of acoustic modelling. A standard technique² allows us to capture a large amount

of *impulse response data* for a given space. The acoustic impulse response is one of the direct outcomes of the auralization modelling process (although in this case we are replacing results from a model with measurements obtained from the actual space) and can be considered as the audio fingerprint for a given space with a given source and listener position. Try this for yourself – on walking into a room, in a moment of silence, clap your hands once. The echoing sound that results is an indication of what the impulse response sounds like. Sometimes it is short and sharp, sometimes long and echoing. The time it takes for the handclap to die away is known as the *reverberation time*, and this is one of the most fundamental quantities that an acoustician can use to characterise, define or gain information about the acoustic qualities of a particular space. Once this impulse response has been obtained (via measurement or auralization modelling), it can be put to use as an *audio effect* for any sound recording at all. The result of this effect being that the recorded sound is heard as if it were being played back in the measured or modelled space, at the position of the source from the perspective of the listener. This technique, the audio rendering of an acoustic space with impulse responses obtained from either a measurement or a model is known as *convolution reverberation*.

The reverberation time of the Tyndall Bruce monument is 1.4 seconds – it takes a sound this long to die away to nothing as the echoes slowly fade. But there is much additional detail in this impulse response that is not revealed with such a simple number. The construction of the tower is circular and made of stone and brick. There is very little material present to absorb sound energy within it and as a result, although the reverberation time is not that long (when compared with for instance a large church or concert hall), when listening to the impulse response on its own it is possible to hear fluttering, reflected echoes as they bounce around the interior, moving up the structure and around the listener as they fade to silence. The tall, circular construction of the tower with little soft, absorbing material within is the cause of this phenomenon – once released, there is nowhere for the sound to go and little to make it die away, and so it continues on its journey up and around, manifesting itself as these characteristic echoes in the measured impulse response.

BOTTLED SOUND

The Bottle Dungeon is another example of a highly inaccessible space. As the name suggests it is a subterranean prison, with a narrow vertical opening from above into which the unfortunate would be thrown, landing in a wider enclosed space. But rather than being up a steep wooded hill, it is behind a trapdoor, under a carpet in the administrators' office near the entrance to Falkland Palace and so on a day-to-day basis people don't even know it is there. In this case it was impossible to get the measurement equipment into and out of the dungeon itself safely, and so improvisation was needed. A surround-sound microphone,



Archive image of the
Tyndall Bruce Memorial,
Black Hill

(above left) Tyndall Bruce

Memorial (above right and bottom)
Damian Murphy's rig for acoustic
measurement



capable of capturing four acoustic impulse responses in one go was lowered into the dungeon by its cable. A balloon on a long pole was then employed as the acoustic source signal, with a pin on the end of another long stick used to burst the balloon. This gave surprisingly good quality results which are reasonably repeatable (as long as the balloon is blown up to the same size every time), with the larger the balloon, the better the bass sound of the measurement. In this case the reverberation time was measured as 1.1 seconds - but again there is more at work here than might be discerned from this numerical value. Whereas the Tyndall Bruce Monument did have openings to the air (windows, the entranceway), the Bottle Dungeon is completely enclosed. This means that bass frequencies are better sustained and locked within the room and so the perception of reverberation time at very low frequencies is actually much longer than this default measurement would imply. No comfort of course to an occupant of the Dungeon back when it was still used for the purpose for which it was originally intended.

REBUILDING DECISIONS

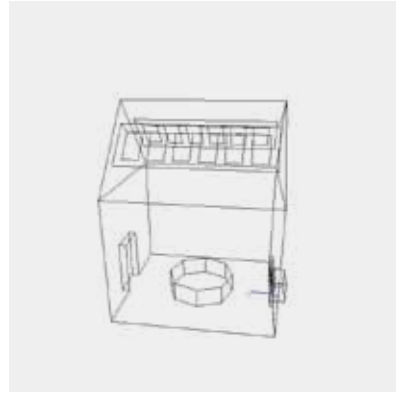
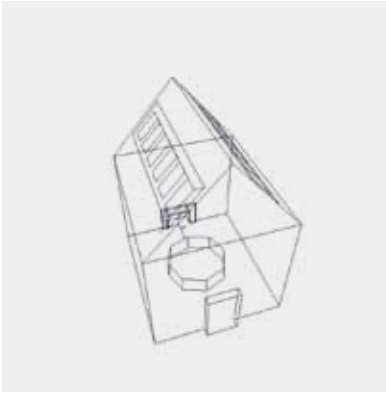
The Temple of Decision is a small classical style summerhouse on a hill, just off from the path up to the Tyndall Bruce monument. Again, located in such a way as to offer beautiful and commanding views of the surrounding Fife countryside to those who spent their afternoons there taking tea and chatting about day-to-day life in and around Falkland. The problem with this site is not its inaccessibility (although this might be considered an issue) but rather the fact it is now a ruin. Despite extensive searching, plans of the original building could not be sourced and so a computer model was constructed based on measurements taken on the modern day site, consisting of crumbling, dilapidated and overgrown stone walls, and from existing documentary and photographic evidence. Aglaia Foteinou, a researcher at the AudioLab, University of York was given the task of rebuilding the Temple of Decision as a computer model and preparing the auralization. The model itself is quite simple - the Temple was small, enclosed and had few interior architectural features of note (or that we know of). The interior walls were plastered and there is clear evidence from old photographs of skylight windows in the roof. The result is a bright sound with a slight echo but no distinct reflections - think of the sound of a large tiled bathroom. The reverberation time is calculated as 1.29 seconds in this case, but would invariably be less - soft furnishings, which would no doubt have been used, as well as the presence of a number of people, all heavily clothed in the fashions of the time would have acted to absorb sound energy and reduce this value. This would be important as the space, as modelled, is probably too bright and echoey to sustain lively conversation between more than two people for any long period of time. As it sounds now, rebuilt and auralized based on



Impulse response measurement of the Bottle Dungeon



Bottle Dungeon: installation shot



Wireframe images from the virtual acoustic modelling of the Temple of Decision

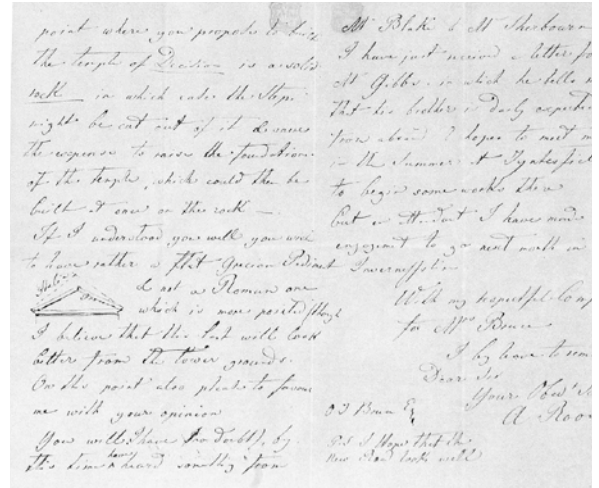
what we could find out in our research, conversation would quickly become wearing due to having to raise one's voice to be heard clearly, or through having to concentrate hard on what any one person was saying above the noise of the echoing sound around them.

ACOUSTIC EXPERIENCES

Of course any auralization is only one particular representation of how a space sounds, and the final result depends much on the (known) limitations of the systems and techniques used and the design criteria applied. This is especially the case with the Temple of Decision example presented here - the final model and auralization is only as good as the research that could be done into the source material that documented what the original space was like. And of course, we cannot say how good or bad the final auralization is - there is nothing left for us to compare it to. Additionally, the result depends very much on the auditory experience the acoustician, sound designer or artist actually desires the listener to perceive - reality, approximation or caricature, what works best for the sound actually presented to the listener? And perhaps most importantly it depends on the prior experience of the listener - are they able or willing to suspend disbelief and immerse themselves in the virtual acoustic reality that is presented to them? This is a much more complex question with no easy answer - not surprising given how complicated we human beings are and how our senses in combination with our brains, knowledge and experiences can inform and interact with one another and affect what we ultimately perceive.



Temple of Decision,
(photo. J. Blyth, Newton)



Letter from Alexander Roos to Onesiphorus Tyndall Bruce
concerning the design of the Temple of Decision

As our understanding of these techniques develops, and we become more accepting of the results that can be produced, then auralization will become an integral part of the modern audio-visual experience. This will offer an almost unlimited palette of realities, virtual or otherwise, for the creativity of the acoustician, sound designer, or artist to work with, and for future audiences to immerse themselves in and experience.

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Please go to the companion website for further information
on the Re-sounding Falkland project,
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Further information on the artists' work can be found here:

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